




UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,340	09/05/2003	Alfred Wenger	9092-0158	7803
25267	7590	09/07/2005	EXAMINER	
BOSE MCKINNEY & EVANS LLP 135 N PENNSYLVANIA ST SUITE 2700 INDIANAPOLIS, IN 46204			CYGAN, MICHAEL T	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,340	WENGER ET AL.	
	Examiner	Art Unit	
	Michael Cygan	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18, 20-37 and 39-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44, 45, 49 and 50 is/are allowed.
- 6) ☒ Claim(s) 12-18, 20-37, 39-43, 46-48 and 51-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/844,013.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 20, 22-26, 28, 30-34, and 55-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Drahm (US 5,531,126). Drahm discloses the claimed invention, a vibration meter comprising a transducer assembly having a hollow (i.e., containing a lumen) flow tube [13] inserted into a pipe (see abstract) and clamped at the ends (Figures 1b,2b) to enable vibratory motion (column 3, lines 14-15), an electromechanical excitation element [20] responsive to adjustable frequencies (column 3, lines 58-64) producing spatial deflections of the flow tube (column 3, lines 14-15), upstream and downstream electrodynamic (column 5, lines 48-50) sensors [18,19] responsive to lateral tube deflections and generating representative signals (column 3, lines 51-64), and meter electronics (Figures 4-8) generating excitation current (column 6, lines 43-46) and an evaluation circuit which takes the quotient of the excitation current (a friction value due to force applied in the transverse direction as disclosed at column 6, lines 43-45) and sensor signals (a flow speed estimate as disclosed at column 5, line 65

through column 6, line 4) to produce a viscosity value of the fluid flowing through the meter (column 7, lines 38-58 and column 8, lines 50+) in addition to mass flow and density values (column 6, lines 1-4). The viscosity is inherently a determination of damping due to the measuring tube being filled with fluid of a certain viscosity and the dummy tube having no measurement fluid. Note that a dummy tube is not a flow tube as claimed in claim 28. See also entire disclosure of Drahm.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12, 14-18, 27, 35, 59, and 61-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drahm (US 5,531,126) in view of Drahm (EP 849,568 A1). Drahm '126 discloses the claimed invention except for the generation of torsions about the flow tube. The structural feature missing from Drahm '126 is a lever arrangement acting on the flow tube approximately at the midpoint (which causes torsions, see applicant's page 17, line 15 through page 18, line 2). Drahm '568 teaches the use of a lever arrangement (Figure 15) as an alternative form to a non-levered arrangement (e.g., Figure 2); see column 14, lines 10-13), which inherently produces torsional modes in

addition to lateral modes (compare Figure 15 of the '568 reference to Figure 2 and explanatory text thereof of applicant's instant application). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a levered arrangement as taught by Drahm '568 in the invention of Drahm '126 to form the vibration means, since this would result in torsional modes which are well known in the flow art to be advantageously used for viscosity analysis.

3. Claims 21 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drahm (US 5,531,126) in view of Van Cleve (US 5,661,232). The claimed invention is considered to be taught except for determining density from a sensor value and determining viscosity therefrom. Van Cleve teaches determining density from a sensor value and determining viscosity therefrom in a Coriolis-type viscosity sensor; see entire document especially column 8 lines 48-59. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use determining density from a sensor value and determining viscosity therefrom as taught by Van Cleve (US 5,661,232) in the invention of Drahm '126 to determine viscosity, since this would result in a viscosity determination which is based upon current data and is compensated for actual measurement conditions.

4. Claims 36, 37, 39-43, 46-48, and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drahm (US 5,531,126) in view of Drahm (EP 849,568 A1) as applied to claim 12, further in view of Van Cleve (US 5,661,232). Drahm '126 discloses the claimed invention except for determining density from a sensor value and determining viscosity therefrom.

Van Cleve teaches determining density, velocity, and frictional forces from a sensor value and determining viscosity therefrom in a Coriolis-type viscosity sensor; see entire document especially column 8 lines 48-59. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use determining density from a sensor value and determining viscosity therefrom as taught by Van Cleve (US 5,661,232) in the invention of Drahm '126 to determine viscosity, since this would result in a viscosity determination which is based upon current data and is compensated for actual measurement conditions.

5. Claims 13 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drahm (US 5,531,126) in view of Drahm (EP 849,568 A1) as applied to claims 12 and 59, further in view of Van Cleve (US 5,661,232). The claimed invention is considered to be taught except for determining density from a sensor value and determining viscosity therefrom. Van Cleve teaches determining density from a sensor value and determining viscosity therefrom in a Coriolis-type viscosity sensor; see entire document especially column 8

lines 48-59. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use determining density from a sensor value and determining viscosity therefrom as taught by Van Cleve (US 5,661,232) in the invention of Drahm '126 to determine viscosity, since this would result in a viscosity determination which is based upon current data and is compensated for actual measurement conditions.

Response to Arguments

6. Applicant's arguments filed 18 July 2005 have been fully considered but they are not persuasive. As the Office has consistently made clear during the prosecution of this application and its parent application, the determination of viscosity is determined from the excitation current and from the sensor signal. As stated previously in the parent application, "Applicant argues that Drahm '126 does not teach use of excitation current to determine the viscosity of the fluid. Applicant correctly agrees that the viscosity is determined from diode [52]. Applicant states that the output of diode [52] is not the excitation current; however the claim requires only that the viscosity be determined from the excitation current. Diode [52] receives a voltage from the excitation coils [34,37] of the system [30] used to excite the dummy tube and therefrom the measurement tube; see column 8, lines 55+ and column 7, lines 38-45. This voltage results from the excitation current applied to the coils by system [30].

Therefore, the determination of viscosity is determined from the excitation current”.

7. Applicant’s arguments regarding modulation of the signal which results from the modulation current into form proper for an evaluating circuit may obscure but not counter the fact that the current used to excite the coils causing electromechanical excitation of the flow tube is used to calculate the viscosity. As claimed, the evaluating circuit (including any necessary components) derives from the excitation current and the sensor signal a viscosity value representative of the viscosity of the fluid. Any components converting the excitation current into a signal comparable with the sensor signal are considered to be part of the evaluating circuit as claimed.
8. Applicant’s arguments on page 17 which amount to a statement that the excitation current measured by Drahm ‘126 would also contain noise from other sources is not persuasive since all systems contain some sort of noise, and since the claim defines the excitation circuit only broadly, thereby including excitation circuits producing excitation currents which may have dependencies on temperature, etc. Although the claims are interpreted in light of the specification, limitations from the specification, or indeed from the arguments of applicant’s representatives, are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. Contrary to applicant's arguments, the dummy flow tube oscillates in the same manner as the flow tube; therefore sensors on the dummy tube act to sense the oscillation of the flow tube.
10. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The suggestion to combine is found in the knowledge of persons of ordinary skill in the art as presented in the rejection. Furthermore, the statements on pages 18-19 of the response that neither reference discloses simultaneous torsional and lateral bending is incorrect. Drahm '568 sets forth simultaneous torsional and lateral bending at column 11 line 45 through column 12 line 30; the advantage of improved measurement accuracy thereby is set forth at column 16 lines 7-10.

Allowable Subject Matter

11. Claims 44, 45, 49, and 50 are allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2855

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MICHAEL CYGAN, Ph.D.
PRIMARY EXAMINER